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ATTACHMENT 53
Page 1 of 29

VOLATILE ORGANIC DATA VALIDATION SUMMARY FOR DATA PACKAGE:
B09332-TMA-611 (923-E418, Filename B09332.VOA)

COPY

MEMORANDUM

TO: 200-UP-2 Project QA Record April 20, 1994

FR: Susan Winter, Golder Associates Inc.

RE: VOLATILE ORGANIC DATA VALIDATION SUMMARY FOR DATA PACKAGE: B09332-TMA-611 (923-E418, Filename B09332.VOA)

INTRODUCTION

This memo presents the results of data validation on data package B09332-TMA-611 prepared by the Thermo Analytical (TMA) laboratory. A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B09332	09/09/93	SOIL	SEE NOTE 1
B09333	09/10/93	SOIL	
B09335	09/09/93	SOIL	
B09336	09/10/93	SOIL	
Note 1. All samples were analyzed for CLP TCL volatiles.			

Data validation was conducted in accordance with the WHC statement of work (WHC 1993a) and validation procedures (WHC 1993b). Attachments 1 through 5 provide the following information as indicated below:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

This section presents a summary of the data quality in terms of the referenced validation criteria.

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals were met for all sample results as specified in the reference analytical method.

Completeness. The data package was complete for all requested analyses. A total of four samples were validated in this data package with a total of 132 determinations reported, all of

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which were deemed valid. This results in a completeness of 100 percent, which meets normal work plan objectives of 90%.

Sample B09335 was identified as a solid trip blank in which all results were verified as nondetects with the exception tentatively identified compound (TIC) labeled as an unknown hydrocarbon at a retention time of 27.50 minutes and at a concentration of 8 µg/kg. This sample, B09335, is the only sample in this data package in which a TIC was detected.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

The following minor deficiencies were identified during data validation which required qualification of data.

Laboratory Blanks

- Methylene chloride and acetone were present in the associated laboratory blank. Attachments 2 and 5 provide a summary of the affected samples, data qualifications applied and supporting documentation.

REFERENCES

WHC 1993a, Validation of 200-UP-2 Data, Statement of Work, Analytical Laboratory Data Validation, Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

WHC 1993b, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993. Westinghouse Hanford Company, Richland, Washington.

Revised 4/20/94

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. The associated data should be considered usable for decision making purposes.

U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample quantitation limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However in either case, the associated data should be considered usable for decision making purposes.

NJ - Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

N - Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

JN - Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.

UR - Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY

SDG: B09332-TMA-611	VALIDATOR:	DATE: March 4, 1994	PAGE 1 OF 1
COMMENTS: VOLATILE ORGANICS			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
ACETONE	U	B09332 B09333 B09336	PRESENT IN LABORATORY BLANK
UNKNOWN HYDROCARBON @ RT 27.5 MINUTES	JN	B09335	IDENTIFIED AS A VALID RESULT USING DATA VALIDATION PROCEDURES

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: B09332-TMA-611

	Samp#	B09332		B09333		B09335		B09336	
	Date	9-9-93		9-10-93		9-9-93		9-10-93	
	Location	299-W19-95		299-W19-97		299-W19-97		299-W19-95	
	Depth	60.00 - 62.50		50.00 - 52.50		---		74.80 - 77.30	
	Type	---		---		TRIP BLANK		---	
	Comments	---		---		---		---	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q
CHLOROMETHANE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
BROMOMETHANE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
VINYL CHLORIDE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
CHLOROETHANE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
METHYLENE CHLORIDE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
ACETONE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
CARBON DISULFIDE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
1,1-DICHLOROETHENE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
1,1-DICHLOROETHANE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
1,2-DICHLOROETHENE (TOTAL)	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
CHLOROFORM	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
1,2-DICHLOROETHANE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
2-BUTANONE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
1,1,1-TRICHLOROETHANE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
CARBON TETRACHLORIDE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
BROMODICHLOROMETHANE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
1,2-DICHLOROPROPANE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
CIS-1,3-DICHLOROPROPENE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
TRICHLOROETHENE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
DIBROMOCHLOROMETHANE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
1,1,2-TRICHLOROETHANE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
BENZENE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
TRANS-1,3-DICHLOROPROPENE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
BROMOFORM	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
4-METHYL-2-PENTANONE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
2-HEXANONE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
TETRACHLOROETHENE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
1,1,2,2-TETRACHLOROETHANE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
TOLUENE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
CHLOROBENZENE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
ETHYLBENZENE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
STYRENE	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U
XYLENES (TOTAL)	UG/KG	11.000	U	12.000	U	10.000	U	10.000	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

299-W19-95

B09332

60-62.5'

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09028 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A309028-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30916R15

Level: (low/med) LOW Date Received: 09/14/93

% Moisture: not dec. 6 Date Analyzed: 09/16/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

9413225.1512

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	11 ~~3~~	~~BJ~~
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

Q

U

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FORM I VOA Revised 3/90

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
299-W19-95
B09332
60-62.5'

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09028 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A309028-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30916R15

Level: (low/med) LOW Date Received: 09/14/93

% Moisture: not dec. 6 Date Analyzed: 09/16/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9W3225.1513

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
299-W19-97

B09333
50-52.5'

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09028 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A309028-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30916R12

Level: (low/med) LOW Date Received: 09/14/93

% Moisture: not dec. 17 Date Analyzed: 09/16/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

94I3225.1514

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	~~5~~ 12	~~BJ~~ U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

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EPA SAMPLE NO.
299-W19-97

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B09333
5-525

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09028 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A309028-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30916R12

Level: (low/med) LOW Date Received: 09/14/93

% Moisture: not dec. 17 Date Analyzed: 09/16/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9413225.1515

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FORM I VOA-TIC

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
299-W9-97
B09335
Solid Trip Blank

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09028 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A309028-04A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30916R14

Level: (low/med) LOW Date Received: 09/14/93

% Moisture: not dec. 0 Date Analyzed: 09/16/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

9W3225.1516

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
299-W-19-97
B09335
Solid Trip Blk

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09028 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A309028-04A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30916R14

Level: (low/med) LOW Date Received: 09/14/93

% Moisture: not dec. 0 Date Analyzed: 09/16/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

94A3225.1517

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	27.50	8	~~J~~ JN

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
299-W19-95

B09336
74.8-77.3'

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09028 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A309028-03A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30916R13

Level: (low/med) LOW Date Received: 09/14/93

% Moisture: not dec. 3 Date Analyzed: 09/16/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

9413225.1518

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10	U	
67-64-1	Acetone	10 ~~3~~	~~BJ~~	J
75-15-0	Carbon Disulfide	10	U	
75-35-4	1,1-Dichloroethene	10	U	
75-34-3	1,1-Dichloroethane	10	U	
540-59-0	1,2-Dichloroethene (total)	10	U	
67-66-3	Chloroform	10	U	
107-06-2	1,2-Dichloroethane	10	U	
78-93-3	2-Butanone	10	U	
71-55-6	1,1,1-Trichloroethane	10	U	
56-23-5	Carbon Tetrachloride	10	U	
75-27-4	Bromodichloromethane	10	U	
78-87-5	1,2-Dichloropropane	10	U	
10061-01-5	cis-1,3-Dichloropropene	10	U	
79-01-6	Trichloroethene	10	U	
124-48-1	Dibromochloromethane	10	U	
79-00-5	1,1,2-Trichloroethane	10	U	
71-43-2	Benzene	10	U	
10061-02-6	trans-1,3-Dichloropropene	10	U	
75-25-2	Bromoform	10	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	10	U	
79-34-5	1,1,2,2-Tetrachloroethane	10	U	
108-88-3	Toluene	10	U	
108-90-7	Chlorobenzene	10	U	
100-41-4	Ethylbenzene	10	U	
100-42-5	Styrene	10	U	
1330-20-7	Xylene (total)	10	U	

015

FORM I VOA Verified 3/90

3/2/94

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
299-W19-95
B09336
74.8-77.3

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09028 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A309028-03A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30916R13

Level: (low/med) LOW Date Received: 09/14/93

% Moisture: not dec. 3 Date Analyzed: 09/16/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9W3225.1519

016

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ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

CASE NARRATIVE

LABORATORY : TMA/ARLI

CASE : 09-028

CONTRACT ID : WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE : September 14, 1993

1.0 DESCRIPTION OF CASE :

Four soil samples were analyzed for TCL Organics- Volatiles and Semivolatiles according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision OLM01.8. The Extractable Hydrocarbons in the Kerosene Range (K) were analyzed according to the SW-846 Method 8015M.

2.0 SAMPLE LIST :

WESTINGHOUSE ID	LAB ID	ANALYSIS REQUESTED	MATRIX
B09332	A3-09-028-01A	V	SOIL
B09332 MS	A3-09-028-01B	V	SOIL
B09332 MSD	A3-09-028-01C	V	SOIL
B09332	A3-09-028-01D	SV	SOIL
B09332	A3-09-028-01G	K	SOIL
B09333	A3-09-028-02A	V	SOIL
B09333	A3-09-028-02B	SV	SOIL
B09333 MS	A3-09-028-02C	SV	SOIL
B09333 MSD	A3-09-028-02D	SV	SOIL
B09333	A3-09-028-02G	K	SOIL
B09336	A3-09-028-03A	V	SOIL
B09336	A3-09-028-03B	SV	SOIL
B09336	A3-09-028-03D	K	SOIL
B09336 MS	A3-09-028-03E	K	SOIL
B09336 MSD	A3-09-028-03F	K	SOIL
B09335	A3-09-028-04A	V	SOIL

3.0 COMMENTS :

3.1 SHIPPING AND DOCUMENTATION :

All of the samples were received intact and properly documented.

3.2 ANALYSIS

3.2.1 VOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were analyzed by heated purge within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

TUNES :

All BFB tunes were injected directly into the GC/MS instrument.

3.2.2 SEMIVOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the CLP SOW holding times. Phenol was detected in sample B09336 at a concentration that was below the CRQL.

The matrix spike recovery of 2,4-Dinitrotoluene in sample B09333MS was slightly above the QC limits. In accordance with the protocol, no further action was required.

All of the other QC results were within the limits specified by the EPA CLP SOW.

3.2.3 EXTRACTABLE HYDROCARBONS "KEROSENE RANGE" COMMENTS :

SEQUENCE NOTES :

The sequence was started on 09/16/93 and was analyzed according to the SW-846 Method 8015M. The initial calibration consisted of 5 different levels of the Kerosene standard that ranged from 200ppm to 2000ppm. The continuing calibration at the 1000ppm level was injected amongst a series of samples, in order to verify the instrument stability. The %RSD in the initial calibration and the %D in the continuing calibration were below their 20% and 15% limits, respectively.

SAMPLE NOTES :

LOW LEVEL SOIL :

The samples were extracted and analyzed for extractable hydrocarbons in the Kerosene range within the required holding times. Approximately 20 g of each sample was extracted and concentrated to 5 mL.

There were no hydrocarbons detected in any of the samples. Sample B09336 was spiked with Kerosene and the matrix spike recoveries were 85% and 93%. A blank spike was prepared at the same time, and had an 79% recovery.

All of the QC results were within the limits specified by the SW-846 Method 8015M.

We certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data in this hardcopy data package and in the computer-readable data submitted on diskette is authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Nicole Roth
Nicole Roth 11/29/93
CLP Program Manager

Maureen Parrish
Maureen Parrish 11/29/93
Project Manager

~~000002A~~

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 9-9-93

Ice Chest No.: SML 366 — Field Logbook No.: EFL-1091

Bill of Lading/Airbill No.: _____ — Offsite Property No.: _____

Method of Shipment: OVERNIGHT AIR SERVICE

Shipped to: TMA

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) NONE DETECTABLE

Sample Identification

1) B09332

2,120ml ~~1,250ml~~ P:CLP;TAL Metals,Hg,Ti
~~1,250ml~~ Gs:VOA CLP
~~1,250ml~~ aG:Semi-VOA CLP
~~1,125ml~~ G:Anions F,Cl,SO4 (EPA 300.0)
~~1,125ml~~ P/G:Anions NO2,NO3 (EPA 353.2)
~~1,125ml~~ G:Cyanide CLP
~~1,125ml~~ Gw:Kerosene (8015M)
~~1,000ml~~ P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

94J3225.450 JBR 9-10-93

2) ~~B09334~~ B09335

2,120ml ~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml~~ Gs:VOA CLP
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,125ml G:Cyanide CLP~~
~~1,125ml Gw:Kerosene (8015M)~~
~~1,000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79~~

JBR 9-10-93

3)

1,250ml P:CLP;TAL Metals,Hg,Ti
1,250ml Gs:VOA CLP
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

[ ] Field Transfer of Custody

Chain of Possession (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
1040 Irene E. Rogers 9-10-93	Robert Sickle	1040 9-10-93
Relinquished by: Robert Sickle 1054 9-10-93	Received by: Linda H. NARCISO	Date/Time: 9-14-93 10:50
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

~~000002C~~

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 9-10-93

Ice Chest No.: SML 366 — Field Logbook No.: EFL-1091

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: OVERNIGHT AIR SERVICE

Shipped to: TMA

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) NONE DETECTED

Sample Identification

1) B09333

1,250ml	P:CLP;TAL Metals,Hg,Ti
1,250ml	Gs:VOA CLP
1,250ml	nG:Semi-VOA CLP
1,125ml	G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml	P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml	G:Cyanide CLP
1,125ml	Gw:Kerosene (8015M)
1,1000ml	P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

2) B09336

1,250ml	P:CLP;TAL Metals,Hg,Ti
1,250ml	Gs:VOA CLP
1,250ml	aG:Semi-VOA CLP
1,125ml	G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml	P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml	G:Cyanide CLP
1,125ml	Gw:Kerosene (8015M)
1,1000ml	P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

2,1250ml 9-10-93 JGR

3) JGR 9-10-93

1,250ml	P:CLP;TAL Metals,Hg,Ti
1,250ml	Gs:VOA CLP
1,250ml	aG:Semi-VOA CLP
1,125ml	G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml	P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml	G:Cyanide CLP
1,125ml	Gw:Kerosene (8015M)
1,1000ml	P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

[] Field Transfer of Custody

Chain of Possession (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
1040 Lorne E. Rogers 9-10-93	R.W.T Sickle	9-10-93 1040
Relinquished by: R.W.T Sickle 1054 9-10-93	Received by: A. HARRIS	Date/Time: 9-14-93 10:50
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 200-UP-2			DATA PACKAGE: B0933-TMA-611		
VALIDATOR: [illegible]		LAB: TMA		DATE: 03/02/94	
CASE:			SDG: B0933-TMA-611		

ANALYSES PERFORMED

☒ CLP Volatiles	☐ SW-846 8240 (cap column)	☐ SW-846 8260 (packed column)	☐ CLP Semivolatiles	☐ SW-846 8270 (cap column)	☐ SW-846 (packed column)
☐	☐	☐	☐	☐	☐

SAMPLES/MATRIX Soils
B0933 2
B0933 3
B0933 5
B0933 6

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? . . . . . (Yes) No N/A

Is a case narrative present? . . . . . (Yes) No N/A

Comments: _____

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . (Yes) No N/A

Comments: _____

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. INSTRUMENT TUNING AND CALIBRATION

Is the GC/MS tuning/performance check acceptable? . . . . . (Yes) No N/A
Are initial calibrations acceptable? . . . . . (Yes) No N/A
Are continuing calibrations acceptable? . . . . . (Yes) No N/A
Comments:

4. BLANKS

Were laboratory blanks analyzed? . . . . . (Yes) No N/A
Are laboratory blank results acceptable? . . . . . Yes (No) N/A
Were field/trip blanks analyzed? . . . . . (Yes) No N/A
Are field/trip blank results acceptable? . . . . . Yes (No) N/A
Comments: Acetone and CH_2Cl_2 were detected in the associated lab blank.

Sample B07335 is a field trip blank - all results are ND with the exception of a TIC identified as an unknown hydrocarbon.

5. ACCURACY

Were surrogates/System Monitoring Compounds analyzed? . . . . . (Yes) No N/A
Are surrogate/System Monitoring Compound recoveries acceptable? (Yes) No N/A
Were MS/MSD samples analyzed? . . . . . (Yes) No N/A
Are MS/MSD results acceptable? . . . . . (Yes) No N/A
Comments:

GC/MS ORGANIC DATA VALIDATION CHECKLIST

6. PRECISION

Are MS/MSD RPD values acceptable? . . . . . (Yes) No N/A

Are field duplicate RPD values acceptable? . . . . . Yes No (N/A)

Are field split RPD values acceptable? . . . . . Yes No (N/A)

Comments:_____

7. SYSTEM PERFORMANCE

Were internal standards analyzed? . . . . . (Yes) No N/A

Are internal standard areas acceptable? . . . . . (Yes) No N/A

Are internal standard retention times acceptable? . . . . . (Yes) No N/A

Comments:_____

8. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? . . . . . (Yes) No N/A

Is compound quantitation acceptable? . . . . . (Yes) No N/A

Comments:_____

9. REPORTED RESULTS AND QUANTITATION LIMITS

Are results reported for all requested analyses? . . . . . (Yes) No N/A

Are all results supported in the raw data? . . . . . (Yes) No N/A

Do results meet the CRQLs? . . . . . (Yes) No N/A

Has the laboratory properly identified and coded all TIC? . . (Yes) No N/A

Comments:_____

HOLDING TIME SUMMARY

B09332-TMA-611

SDG:	VALIDATOR:	DATE: 3/2/94	PAGE 1 OF 1

COMMENTS: Volatile Organics

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09332	VOA	09/09/93		9/16/93		7	None
B09333	↓	09/10/93		↓		6	↓
B09335	↓	09/09/93		↓		7	↓
B09336	↓	09/10/93		↓		6	↓

~~000162~~

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK0916R

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09028 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: SBLK0916

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30916R03

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 09/16/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

94/3225.1531

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	3	J
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

MC=25

MC=30

-028

3/24/94

VOLATILE ORGANIC DATA VALIDATION SUMMARY FOR DATA PACKAGE:
B09332-TMA-611 (923-E418, Filename B09332.VOA)

MEMORANDUM

TO: 200-UP-2 Project QA Record

March 2, 1994

FR: Susan Winter, Golder Associates Inc

RE: VOLATILE ORGANIC DATA VALIDATION SUMMARY FOR DATA PACKAGE: B09332-TMA-611 (923-E418, Filename B09332.VOA)

INTRODUCTION

This memo presents the results of data validation on data package B09332-TMA-611 prepared by the Thermo Analytical (TMA) laboratory. A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B09332	09/09/93	SOIL	SEE NOTE 1
B09333	09/10/93	SOIL	
B09335	09/09/93	SOIL	
B09336	09/10/93	SOIL	
Note 1. All samples were analyzed for CLP TCL volatiles.			

Data validation was conducted in accordance with the WHC statement of work (WHC 1993a) and validation procedures (WHC 1993b). Attachments 1 through 5 provide the following information as indicated below:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals were met for all sample results as specified in the reference analytical method.

Completeness. The data package was complete for all requested analyses. A total of four samples were validated in this data package with a total of 132 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent, which meets normal work plan objectives of 90%.

Sample B09335 was identified as a solid trip blank in which all results were verified as nondetects with the exception tentatively identified compound (TIC) labeled as an unknown hydrocarbon at a retention time of 27.50 minutes and at a concentration of 8 µg/kg. This sample, B09335, is the only sample in this data package in which a TIC was detected.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

The following minor deficiencies were identified during data validation which required qualification of data.

Laboratory Blanks

- Methylene chloride and acetone were present in the associated laboratory blank. Attachments 2 and 5 provide a summary of the affected samples, data qualifications applied and supporting documentation.

REFERENCES

WHC 1993a, Validation of 200-UP-2 Data, Statement of Work, Analytical Laboratory Data Validation, Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

WHC 1993b, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993. Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. The associated data should be considered usable for decision making purposes.

U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample quantitation limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However in either case, the associated data should be considered usable for decision making purposes.

NJ - Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

N - Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

JN - Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.

UR - Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY

SDG: B09332-TMA-611	VALIDATOR:	DATE: March 4, 1994	PAGE 1 OF 1
COMMENTS: VOLATILE ORGANICS			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
ACETONE	U	B09332 B09333 B09336	PRESENT IN LABORATORY BLANK
UNKNOWN HYDROCARBON @ RT 27.5 MINUTES	JN	B09335	IDENTIFIED AS A VALID RESULT USING DATA VALIDATION PROCEDURES

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: B09332-IMA-611

Parameter	Units	Samp#	B09332		B09333		B09335		B09336	
		Date	9-9-93		9-10-93		9-9-93		9-10-93	
		Location	299-W19-95		299-W19-97		299-W19-97		299-W19-95	
		Depth	60.00 - 62.50		50.00 - 52.50		---		74.80 - 77.30	
		Type	---		---		TRIP BLANK		---	
		Comments	---		---		---		---	
			Result	Q	Result	Q	Result	Q	Result	Q
CHLOROMETHANE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
BROMOMETHANE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
VINYL CHLORIDE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
CHLOROETHANE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
METHYLENE CHLORIDE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
ACETONE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
CARBON DISULFIDE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
1,1-DICHLOROETHENE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
1,1-DICHLOROETHANE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
1,2-DICHLOROETHENE (TOTAL)	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
CHLOROFORM	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
1,2-DICHLOROETHANE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
2-BUTANONE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
1,1,1-TRICHLOROETHANE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
CARBON TETRACHLORIDE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
BROMODICHLOROMETHANE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
1,2-DICHLOROPROPANE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
CIS-1,3-DICHLOROPROPENE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
TRICHLOROETHENE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
DIBROMOCHLOROMETHANE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
1,1,2-TRICHLOROETHANE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
BENZENE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
TRANS-1,3-DICHLOROPROPENE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
BROMOFORM	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
4-METHYL-2-PENTANONE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
2-HEXANONE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
TETRACHLOROETHENE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
1,1,2,2-TETRACHLOROETHANE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
TOLUENE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
CHLOROBENZENE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
ETHYLBENZENE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
STYRENE	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U
XYLENES (TOTAL)	UG/KG		11.000	U	12.000	U	10.000	U	10.000	U

Verified
3/03/94

8007

~~000091~~

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

299-W19-95

B09332 / 60-62.5'

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09028 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A309028-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30916R15

Level: (low/med) LOW Date Received: 09/14/93

% Moisture: not dec. 6 Date Analyzed: 09/16/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

9113225.1541

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	~~3~~ 11	~~BJ~~ U
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

Q

U

0009

Verified

3/2/94

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
299-W.9-95
B09332
60-62.5'

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09028 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A309028-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30916R15

Level: (low/med) LOW Date Received: 09/14/93

% Moisture: not dec. 6 Date Analyzed: 09/16/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

DW3225.1542

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

010

FORM I VOA-TIC Verified 3/2/94 3/90

~~000101~~

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
299-W19-97

B09333
50-52.5'

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09028 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A309028-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30916R12

Level: (low/med) LOW Date Received: 09/14/93

% Moisture: not dec. 17 Date Analyzed: 09/16/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

9413225.1543

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	~~5~~	~~BJ~~
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

Q

011

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3/2/94

~~000102~~

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
299-W19-97

B09333
5-5.5'

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09028 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A309028-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30916R12

Level: (low/med) LOW Date Received: 09/14/93

% Moisture: not dec. 17 Date Analyzed: 09/16/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9W3225.1544

012

FORM I VOA-TIC 3/90

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~~000111~~

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
299-W19-97

B09335
Solid Trip Blank

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09028 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A309028-04A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30916R14

Level: (low/med) LOW Date Received: 09/14/93

% Moisture: not dec. 0 Date Analyzed: 09/16/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

PNL 3225.1545

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

L013

FORM I VOA Verified 3/90

3/2/94

000112

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
299-W-19-97
B09335
Solid Trip Blank

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09028 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A309028-04A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30916R14

Level: (low/med) LOW Date Received: 09/14/93

% Moisture: not dec. 0 Date Analyzed: 09/16/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

9113225.1546

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	27.50	8	J

JN

014

FORM I VOA-TIC 3/90

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~~000120~~

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
299-W-19-95

B09336
74.3-77.3'

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09028 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A309028-03A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30916R13

Level: (low/med) LOW Date Received: 09/14/93

% Moisture: not dec. 3 Date Analyzed: 09/16/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

9W3225.1547

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10	U	
67-64-1	Acetone	10 ~~3~~	~~BJ~~	J
75-15-0	Carbon Disulfide	10	U	
75-35-4	1,1-Dichloroethene	10	U	
75-34-3	1,1-Dichloroethane	10	U	
540-59-0	1,2-Dichloroethene (total)	10	U	
67-66-3	Chloroform	10	U	
107-06-2	1,2-Dichloroethane	10	U	
78-93-3	2-Butanone	10	U	
71-55-6	1,1,1-Trichloroethane	10	U	
56-23-5	Carbon Tetrachloride	10	U	
75-27-4	Bromodichloromethane	10	U	
78-87-5	1,2-Dichloropropane	10	U	
10061-01-5	cis-1,3-Dichloropropene	10	U	
79-01-6	Trichloroethene	10	U	
124-48-1	Dibromochloromethane	10	U	
79-00-5	1,1,2-Trichloroethane	10	U	
71-43-2	Benzene	10	U	
10061-02-6	trans-1,3-Dichloropropene	10	U	
75-25-2	Bromoform	10	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	10	U	
79-34-5	1,1,2,2-Tetrachloroethane	10	U	
108-88-3	Toluene	10	U	
108-90-7	Chlorobenzene	10	U	
100-41-4	Ethylbenzene	10	U	
100-42-5	Styrene	10	U	
1330-20-7	Xylene (total)	10	U	

015

FORM I VOA Verified 3/90

3/2/94

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
299-W-19-95
B09336
74.8-77 773

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09028 SAS No.: NA SDG No.: NA 3/2/94

Matrix: (soil/water) SOIL Lab Sample ID: A309028-03A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30916R13

Level: (low/med) LOW Date Received: 09/14/93

% Moisture: not dec. 3 Date Analyzed: 09/16/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

OU3225.1548

016

FORM I VOA-TIC Verified 3/2/94 3/90

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

CASE NARRATIVE

LABORATORY : TMA/ARLI

CASE : 09-028

CONTRACT ID : WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE : September 14, 1993

1.0 DESCRIPTION OF CASE :

Four soil samples were analyzed for TCL Organics- Volatiles and Semivolatiles according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision OLM01.8. The Extractable Hydrocarbons in the Kerosene Range (K) were analyzed according to the SW-846 Method 8015M.

2.0 SAMPLE LIST :

WESTINGHOUSE ID	LAB ID	ANALYSIS REQUESTED	MATRIX
B09332	A3-09-028-01A	V	SOIL
B09332 MS	A3-09-028-01B	V	SOIL
B09332 MSD	A3-09-028-01C	V	SOIL
B09332	A3-09-028-01D	SV	SOIL
B09332	A3-09-028-01G	K	SOIL
B09333	A3-09-028-02A	V	SOIL
B09333	A3-09-028-02B	SV	SOIL
B09333 MS	A3-09-028-02C	SV	SOIL
B09333 MSD	A3-09-028-02D	SV	SOIL
B09333	A3-09-028-02G	K	SOIL
B09336	A3-09-028-03A	V	SOIL
B09336	A3-09-028-03B	SV	SOIL
B09336	A3-09-028-03D	K	SOIL
B09336 MS	A3-09-028-03E	K	SOIL
B09336 MSD	A3-09-028-03F	K	SOIL
B09335	A3-09-028-04A	V	SOIL

3.0 COMMENTS :

3.1 SHIPPING AND DOCUMENTATION :

All of the samples were received intact and properly documented.

3.2 ANALYSIS

3.2.1 VOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were analyzed by heated purge within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

TUNES :

All BFB tunes were injected directly into the GC/MS instrument.

3.2.2 SEMIVOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the CLP SOW holding times. Phenol was detected in sample B09336 at a concentration that was below the CRQL.

The matrix spike recovery of 2,4-Dinitrotoluene in sample B09333MS was slightly above the QC limits. In accordance with the protocol, no further action was required.

All of the other QC results were within the limits specified by the EPA CLP SOW.

3.2.3 EXTRACTABLE HYDROCARBONS "KEROSENE RANGE" COMMENTS :

SEQUENCE NOTES :

The sequence was started on 09/16/93 and was analyzed according to the SW-846 Method 8015M. The initial calibration consisted of 5 different levels of the Kerosene standard that ranged from 200ppm to 2000ppm. The continuing calibration at the 1000ppm level was injected amongst a series of samples, in order to verify the instrument stability. The %RSD in the initial calibration and the %D in the continuing calibration were below their 20% and 15% limits, respectively.

SAMPLE NOTES :

LOW LEVEL SOIL :

The samples were extracted and analyzed for extractable hydrocarbons in the Kerosene range within the required holding times. Approximately 20 g of each sample was extracted and concentrated to 5 mL.

There were no hydrocarbons detected in any of the samples. Sample B09336 was spiked with Kerosene and the matrix spike recoveries were 85% and 93%. A blank spike was prepared at the same time, and had an 79% recovery.

All of the QC results were within the limits specified by the SW-846 Method 8015M.

We certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data in this hardcopy data package and in the computer-readable data submitted on diskette is authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Nicole Roth
Nicole Roth 11/29/93
CLP Program Manager

Maureen Parrish
Maureen Parrish 11/24/93
Project Manager

~~000C2A~~

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 9-9-93

Ice Chest No.: SML 366 — Field Logbook No.: EFL-1091

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: OVERNIGHT AIR SERVICE

Shipped to: TMA

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) NONE DETECTABLE

Sample Identification

1) B09332

2,120ml ~~1,250ml~~ P:CLP;TAL Metals,Hg,Ti
~~1,250ml~~ Gs:VOA CLP
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml G:Cyanide CLP
1,125ml GW:Kerosene (8015M)
1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

4-10-93 SR

2) ~~B09334~~ B09335

2,120ml ~~1,250ml~~ ~~P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml~~ Gs:VOA CLP
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,125ml G:Cyanide CLP~~
~~1,125ml GW:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79~~

SR 9-10-93

7-10-93 SR

3)

1,250ml P:CLP;TAL Metals,Hg,Ti
~~1,250ml Gs:VOA CLP~~
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml G:Cyanide CLP
1,125ml GW:Kerosene (8015M)
1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

[ ] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
1040 Joan E. Rogers 9-10-93	Rcvd. Signature	1040 9-10-93
Relinquished by: Rcvd. Signature 1054 9-10-93	Received by: H. NARCISO	Date/Time: 9-14-93 10:50
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

B000026

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 9-10-93

Ice Chest No.: SML 366 — Field Logbook No.: EFL-1091

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: OVERNIGHT AIR SERVICE

Shipped to: TMA

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) NONE DETECTED

Sample Identification

1) B09333

1,250ml	P:CLP;TAL Metals,Hg,Ti
1,250ml	Gs:VOA CLP
1,250ml	aG:Semi-VOA CLP
1,125ml	G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml	P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml	G:Cyanide CLP
1,125ml	Gw:Kerosene (8015M)
1,1000ml	P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

2) B09336

1,250ml	P:CLP;TAL Metals,Hg,Ti
~~1,250ml~~	Gs:VOA CLP
1,250ml	aG:Semi-VOA CLP
1,125ml	G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml	P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml	G:Cyanide CLP
1,125ml	Gw:Kerosene (8015M)
1,1000ml	P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

3)

1,250ml	P:CLP;TAL Metals,Hg,Ti
1,250ml	Gs:VOA CLP
1,250ml	aG:Semi-VOA CLP
1,125ml	G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml	P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml	G:Cyanide CLP
1,125ml	Gw:Kerosene (8015M)
1,1000ml	P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

JER 9-10-93

[] Field Transfer of Custody

Chain of Possession (Sign and Print Names)		
Relinquished by: 1040 9-10-93	Received by: R&T Sickle	Date/Time: 9-10-93 1040
Relinquished by: R&T Sickle 1054 9-10-93	Received by: A. HARRIS	Date/Time: 9-11-93 10:50
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

-022

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E (circled)

PROJECT: 200-UP-2		DATA PACKAGE: B0933Z-TMA-611	
VALIDATOR: [signature]	LAB: TMA		DATE: 03/02/94
CASE:		SDG: B0933Z-TMA-611	

ANALYSES PERFORMED

☒ CLP Volatiles	☐ SW-846 8240 (cap column)	☐ SW-846 8260 (packed column)	☐ CLP Semivolatiles	☐ SW-846 8270 (cap column)	☐ SW-846 (packed column)
☐	☐	☐	☐	☐	☐

SAMPLES/MATRIX Soils

B0933Z
B0933
B0933S
B0933b

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? . . . . . (Yes) No N/A

Is a case narrative present? . . . . . (Yes) No N/A

Comments: _____

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . (Yes) No N/A

Comments: _____

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. INSTRUMENT TUNING AND CALIBRATION

Is the GC/MS tuning/performance check acceptable? . . . . . (Yes) No N/A
Are initial calibrations acceptable? . . . . . (Yes) No N/A
Are continuing calibrations acceptable? . . . . . (Yes) No N/A
Comments:

4. BLANKS

Were laboratory blanks analyzed? . . . . . (Yes) No N/A
Are laboratory blank results acceptable? . . . . . Yes (No) N/A
Were field/trip blanks analyzed? . . . . . (Yes) No N/A
Are field/trip blank results acceptable? . . . . . Yes (No) N/A
Comments: Acetone and Methylene Chloride were detected in the associated laboratory blanks

Sample B-9335 is a field trip blank - all results are ND with the exception of a TIC identified as an unknown hydrocarbon.

5. ACCURACY

Were surrogates/System Monitoring Compounds analyzed? . . . . . (Yes) No N/A
Are surrogate/System Monitoring Compound recoveries acceptable? (Yes) No N/A
Were MS/MSD samples analyzed? . . . . . (Yes) No N/A
Are MS/MSD results acceptable? . . . . . (Yes) No N/A
Comments:

GC/MS ORGANIC DATA VALIDATION CHECKLIST

6. PRECISION

Are MS/MSD RPD values acceptable? . . . . . (Yes) No N/A
Are field duplicate RPD values acceptable? . . . . . Yes No (N/A)
Are field split RPD values acceptable? . . . . . Yes No (N/A)
Comments:_____

7. SYSTEM PERFORMANCE

Were internal standards analyzed? . . . . . (Yes) No N/A
Are internal standard areas acceptable? . . . . . (Yes) No N/A
Are internal standard retention times acceptable? . . . . . (Yes) No N/A
Comments:_____

8. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? . . . . . (Yes) No N/A
Is compound quantitation acceptable? . . . . . (Yes) No N/A
Comments:_____

9. REPORTED RESULTS AND QUANTITATION LIMITS

Are results reported for all requested analyses? . . . . . (Yes) No N/A
Are all results supported in the raw data? . . . . . (Yes) No N/A
Do results meet the CRQLs? . . . . . (Yes) No N/A
Has the laboratory properly identified and coded all TIC? . . (Yes) No N/A
Comments:_____

HOLDING TIME SUMMARY

B-9332-TMA-611

SDG:	VALIDATOR:	DATE: 3/2/94	PAGE 1 OF 1

COMMENTS: Volatile Organics

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09332	VOA	09/09/93		9/15/93		7	None
B09333	↓	09/10/93		↓		6	↓
B09335	↓	09/09/93		↓		7	↓
B09336	↓	09/10/93		↓		6	↓

~~000162~~

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK0916R

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09028 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: SBLK0916

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30916R03

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 09/16/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

94/3225.1560

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	3	J
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

NC=30

NC=30

-028

FORM I VOA 3/90

3/2/94